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| 09/416,098 | 10/12/1999 | TERESA H. MENG | 259697 | 5713 |

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| EXAMINER |
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ZHENG, EVA Y

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| ART UNIT | PAPER NUMBER |
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2634

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/416,098

Applicant(s)

MENG ET AL.

Examiner

Eva Yi Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 3,6,7,10-14,17,20,21,24-28,30,32 and 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,8,9,15,16,18,19,22,23,29,31,34 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. In view of the Notice of Panel Decision from Pre-Appeal Review sent on 11/09/05, PROSECUTION IS HEREBY REOPENED set forth below:

Claim Objections

2. Claim 15 is objected to because of the following informalities: on line 8, please add word -- and-- at the end of line, in order to keep claim language clear in paragraph transitions.
3. Claim 34 is objected to because of the following informalities: on line 11, please add word -- and-- at the end of line, in order to keep claim language clear in paragraph transitions.
4. Claim 35 is objected to because of the following informalities: on line 11, please add word -- and-- at the end of line, in order to keep claim language clear in paragraph transitions.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1, 2, 8, 9, 15, 16, 22, 23, 29, 34, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Dent (US 5,742,908).

a) Regarding to claim 1, Dent discloses a device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA, in which a first transceiver unit (satellite) communicates with a second transceiver unit (mobile station) using a common frequency, the device comprising:

means for detecting responsive to a continuous comparison (as shown in Fig. 4) of received (202 in Fig. 2) and detected signals (206 in Fig. 2) an offset between respective common frequency references (210 in Fig. 2) used by the first unit and second transceiver units in a first signal transmitted by the first transceiver unit and received by the second transceiver unit; and

means for adjusting the common frequency in accordance with the offset detected responsive to the continuous comparison of received and detected signals in a second signal to be transmitted by the second transceiver unit and to be received by the first transceiver unit (212 in Fig. 2), so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manners the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the first transceiver unit (216 in Fig. 2; Col 4, L7-Col 5, L51).

b) Regarding to claim 15, Dent discloses a method adapted to be used in a communication system, the communication system using one of OFDM, NBFDM,

DMT, FDMA and TDMA, in which a first transceiver unit (satellite) communicates with a second transceiver unit (mobile station) using a common frequency, the method comprising:

detecting responsive to a continuous comparison (as shown in Fig. 4) of received (202 in Fig. 2) and detected signals (206 in Fig. 2) an offset between respective common frequency references (210 in Fig. 2) used by the first unit and second transceiver units in a first signal transmitted by the first transceiver unit and received by the second transceiver unit;

adjusting the common frequency in accordance with the offset detected responsive to the continuous comparison of received and detected signals in a second signal to be transmitted by the second transceiver unit and to be received by the first transceiver unit (212 in Fig. 2), so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manners the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the first transceiver unit (216 in Fig. 2; Col 4, L7-Col 5, L51).

c) Regarding to claim 29, Dent discloses a device adapted to be used in a first with a second transceiver unit using a transceiver unit that can communicate common carrier frequency, the device comprising:

a frequency lock loop (inherent as block 210, 212, and 214 in Fig. 2) that is coupled to receive a digital representation of a first signal (202 in Fig. 2) transmitted by the second transceiver unit (satellite), the frequency lock loop being adapted to detect a

carrier frequency offset in the first signal and to produce offset information corresponding thereto (Col 5, L11-51); and

a frequency shift block (inherent as 208 in Fig. 2; Doppler shift) that is coupled to receive the offset information and digital data to be transmitted by the first transceiver unit (mobile station) in a second signal to be received by the second transceiver unit, the frequency shift block being adapted to digitally shift the digital data in frequency in accordance with the common carrier frequency and the carrier frequency offset so that the effects of the carrier frequency offset to be perceived by the second transceiver unit will be substantially reduced in preemptive manner for wireless bi-directional communication between the first and second transceiver units (also shown in Fig.4).

d) Regarding to claim 34, Dent discloses a device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA, in which a first transceiver unit (satellite) communicates with a second transceiver unit (mobile station) using a common frequency, the device comprising:

means for detecting responsive to a continuous comparison (as shown in Fig. 4) of received (202 in Fig. 2) and detected signals (206 in Fig. 2) an offset between respective common frequency references (210 in Fig. 2) used by the first unit and second transceiver units in a first signal transmitted by the first transceiver unit and received by the second transceiver unit;

means for communicating information corresponding to the detected offset from the second transceiver unit to the first transceiver unit (wireless bidirectional communication);

means for adjusting the common frequency in accordance with the offset detected responsive to the continuous comparison of received and detected signals in a second signal to be transmitted by the first transceiver unit and to be received by the second transceiver unit (212 in Fig. 2), so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manners the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the second transceiver unit (216 in Fig. 2; Col 4, L7- Col 5, L51).

e) Regarding to claim 35, Dent discloses a device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA, in which a first transceiver unit (satellite) communicates with a second transceiver unit (mobile station) using a common frequency, the device comprising:

means for detecting responsive to a continuous comparison (as shown in Fig. 4) of received (202 in Fig. 2) and detected signals (206 in Fig. 2) an offset between respective common frequency references (210 in Fig. 2) used by the first unit and second transceiver units in a first signal transmitted by the first transceiver unit and received by the second transceiver unit;

means for communicating information corresponding to the detected offset from the second transceiver unit to the first transceiver unit (wireless bidirectional communication);

means for adjusting the common frequency in accordance with the offset detected responsive to the continuous comparison of received and detected signals in a second signal to be transmitted by the second transceiver unit and to be received by the first transceiver unit (212 in Fig. 2), so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manners the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the first transceiver unit (216 in Fig. 2; Col 4, L7-Col 5, L51).

f) Regarding to claims 2 and 16, Dent discloses a device according to claim 1, wherein the common frequency is a carrier frequency (frequency detected in block 308 and 310 Fig. 3).

g) Regarding to claims 8 and 22, Dent discloses wherein the means for detecting the offset includes means for locking onto the offset in the carrier frequency and for producing an output signal corresponding thereto (block 312, 322, and 320 in Fig. 3).

h) Regarding to claims 9 and 23, Dent discloses wherein the means for adjusting the common frequency includes means for variably adjusting a reference frequency output by a crystal oscillator in accordance with the output signal generated by the locking means (316 in Fig 3).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dent (US 5,742,908) in view of Carobolante et al. (US 5,543,697).

a) Regarding to claim 31, Dent discloses a device adapted to be used in a first with a second transceiver unit using a transceiver unit that can communicate common carrier frequency, the device comprising:

a frequency lock loop (inherent as block 310, 312, 322, 320 and 316 in Fig. 3) that is coupled to receive a digital representation of a first signal (302 in Fig. 3) transmitted by the second transceiver unit (satellite),

a crystal oscillator (316 in Fig. 3) that supplies a reference frequency for modulating a second signal to be perceived by the second transceiver unit in accordance with the common carrier frequency (Col 2, L59-61); and

a variably adjustable device (inherent as 312 in Fig. 3) coupled to receive the offset signal and to the crystal oscillator, the variably adjustable device being adapted to adjust the reference frequency of the crystal oscillator in accordance with the offset signal so that the effects of the carrier frequency offset in the second signal to be perceived by the second transceiver unit will be substantially reduced in preemptive

manner for wireless bi-directional communication between the first and second transceiver units (as shown in Fig. 4).

Dent disclose all the subject matters above except for the specific teaching of the frequency lock loop being adapted to detected a carrier frequency offset in the first signal and to produce an analog offset signal.

However, Carobolante et al., in the same field of endeavor, disclose a frequency locked loop (FLL) (66 in Fig. 4) couple with a DAC (44 in Fig. 4).

Therefore, it is obvious to one of ordinary skill in art to adapt the DAC of Carobolante et al in the frequency error correction system of Dent. By doing so, produce desired system operation and correcting frequency offset signals.

9. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent (US 5,742,908) in view of Shiino et al. (US 5,751,776).

Regarding to claims 4 and 18, Dent disclose all the subject matters above except for the specific teaching of performing a correlation a digital representation of the first signal so as to lock onto the offset in the carrier frequency.

However, Shiino et al. in the same field of endeavor, disclose a digital communication receiver performing a complex correlation for compensating frequency offset (abstract and background).

Therefore, it is obvious to one of ordinary skill in art to adapt the correlation method by Shiino et al. in the frequency error correction system of Dent. By doing so,

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provide better frequency error detection and better frequency and phase synchronization in a communication system.

10. Claims 5 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent (US 5,742,908) in view of Kang (US 6,034,990).

Regarding to claims 5 and 19, Dent disclose all the subject matters above except for the specific teaching of digitally shifting data in frequency to be transmitted in accordance with the carrier frequency and the offset.

However, Kang, in the same field of endeavor, disclose a frequency shift keying modulation (FSK) for control frequency offset in a digital receiver system.

Therefore, it is obvious to one of ordinary skill in art to adapt the FSK of Kang in the frequency error correction system of Dent. By doing so, provide better frequency error detection control and better frequency and phase synchronization in a communication system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng
Examiner
Art Unit 2634

January 17, 2006



CHIEH M. FAN
SUPERVISORY PATENT EXAMINER